

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
27 December 2002 (27.12.2002)

PCT

(10) International Publication Number
WO 02/103013 A3

(51) International Patent Classification⁷: C12Q 1/68 (74) Agent: JONES, Brian; Blank Rome Comisky & McCauley LLP, 900 17th Street, NW, Suite 1000, Washington, DC 20006 (US).

(21) International Application Number: PCT/US01/42845 (81) Designated States (national): AU, CA.

(22) International Filing Date: 30 October 2001 (30.10.2001) (84) Designated States (regional): European patent (AT, BE, CH, CY, DE, DK, ES, FL, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR).

(25) Filing Language: English (26) Publication Language: English

(30) Priority Data: 60/243,777 30 October 2000 (30.10.2000) US Published:
— with international search report

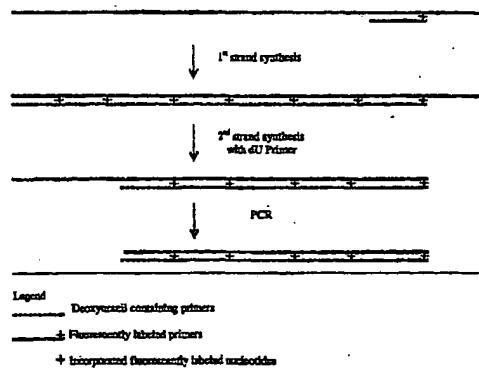
(71) Applicant: GENE LOGIC, INC. [US/US]; 708 Quince Orchard Road, Gaithersburg, MD 20878 (US). (88) Date of publication of the international search report: 13 March 2003

(72) Inventors: HOKE, Glenn; 919 Leafy Hollow Circle, Mt. Airy, MD 21771 (US). STEEL, Adam; 1606 Cody Drive, Silver Spring, MD 20902 (US). HARTWELL, John; 3140 Gershwin Lane, Silver spring, MD 20904 (US).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PARTIALLY DOUBLE-STRANDED NUCLEIC ACIDS, METHODS OF MAKING, AND USE THEREOF

PCR Incorporation of Deoxyuracil-containing Oligonucleotide Primer



WO 02/103013 A3

(57) Abstract: A process is disclosed for generating at least one partially double-stranded target nucleic acid, which contains at least one single-stranded region at a terminal end. The process comprises the steps of (a) providing at least one primer, P1, containing at least one labile nucleotide; (b) combining at least one target nucleic acid sequence with P1 to generate a double-stranded polynucleotide containing at least one labile nucleotide; (c) exposing the double-stranded polynucleotide to conditions that promote single-strand cleavage of the polynucleotide at the site of the at least one labile nucleotide of primer P1; and (d) exposing the cleaved polynucleotide to conditions that promote the dissociation of the cleaved portions of primer P1 from a terminal end. The labile nucleotide may be dUTP, wherein the single-stranded cleavage of the polynucleotide at the site of the labile nucleotide occurs by treatment with uracil N-glycosylase.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 01/42845

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12Q1/68

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, BIOSIS, MEDLINE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 090 553 A (MATSON ROBERT S) 18 July 2000 (2000-07-18) see columns 3-5 ---	1-50
X	WO 95 06753 A (US GOVERNMENT) 9 March 1995 (1995-03-09) see abstract, pages 6-7 ---	1-50
X	WO 96 41005 A (THUNNISSEN FREDERIK B J M ;MURTAGH JAMES J (US)) 19 December 1996 (1996-12-19) see claims, figures 1-3, pages 6-8 ---	1-50
X	WO 00 28084 A (MOLECULAR BIOLOGY RESOURCES) 18 May 2000 (2000-05-18) see p. 3-6, figure 1 ---	1-50
		-/-

 Further documents are listed in the continuation of box C. Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

& document member of the same patent family

Date of the actual completion of the international search

Date of mailing of the international search report

2 December 2002

10/12/2002

Name and mailing address of the ISA

Authorized officer

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel: (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Paresce, D

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 01/42845

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 334 515 A (BUCHMAN III GEORGE W ET AL) 2 August 1994 (1994-08-02) see columns 1-3, claims	1-14
Y	---	15-50
X	US 5 952 176 A (MCCARTHY THOMAS VALENTINE ET AL) 14 September 1999 (1999-09-14) see columns 5-6	1-14
Y	-----	15-50

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 01/42845

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
US 6090553	A	18-07-2000	NONE		
WO 9506753	A	09-03-1995	AU WO	7718594 A 9506753 A1	22-03-1995 09-03-1995
WO 9641005	A	19-12-1996	US AU WO	5744306 A 6256896 A 9641005 A1	28-04-1998 30-12-1996 19-12-1996
WO 0028084	A	18-05-2000	AU WO	1908100 A 0028084 A1	29-05-2000 18-05-2000
US 5334515	A	02-08-1994	WO	9218521 A1	29-10-1992
US 5952176	A	14-09-1999	AT AU AU CA DE DK EP WO JP NO NZ	220725 T 708821 B2 4399596 A 2226542 A1 69527444 D1 843735 T3 0843735 A1 9703210 A1 2000509241 T 980105 A 298494 A	15-08-2002 12-08-1999 10-02-1997 30-01-1997 22-08-2002 11-11-2002 27-05-1998 30-01-1997 25-07-2000 10-03-1998 29-09-1999